KORTEK

USER'S MANUAL
(Preliminary)

KT-LS17E4/STD

XGA TFT LCD Analog-Digital Conversion Board

MAY. 2000

KORTEK CORPORATION

328-5 Songnae-1 Dong
Sosa-Gu,Puchon-Si,
Kyunggi-Do, Korea
422-042
Tel (82)-32-667-3711
Fax (82)-32-665-0297

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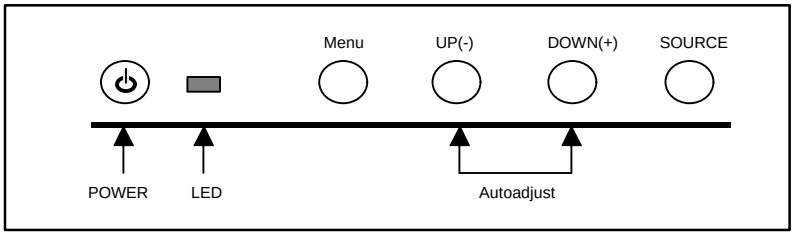
1. OSD Menu Procedure Map

BRIGHTNESS & CONTRAST	
COLOR TEMPERATURE	**COLOR TEMPERATURE ADJUST**
POSITION	
ZOOM	
HUE & SATURATION	
LANGUAGE	
SOURCE	
VIDEO SCALING	**4 : 3 DISPLAY MODES**
	16 : 9 DISPLAY MODES
UTILITIES	**USER SETTINGS**
	FREEZE FRAME
	GAMMA ADJUST
	TEST PATTERN
	RESET TO FACTORY DEFAULTS
	AUTO ADJUST
EXIT	

2. Keypad Usage

2-1. OSD Board Description

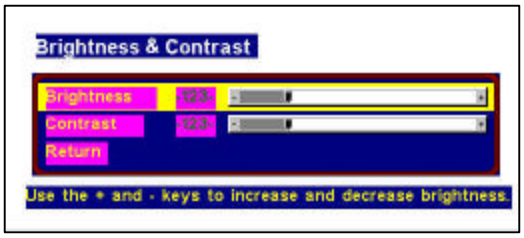


POWER	**LCD monitor power on/off**
MENU	**Select MainMenu/SubMenu**
UP(-)	**Move Prev Item/Decrease the value**
DOWN(+)	**Move Next Item/Increase the value**
SOURCE	**Select Source Menu**
AUTOADJUST	**Press (+) and (-)key at the same time**

2-2. LED Function

DPMS ON	**GREEN**
DPMS STANDBY	**RED**
DPMS SUSPEND	**RED**
DPMS OFF	**RED**

3. OSD Function Description

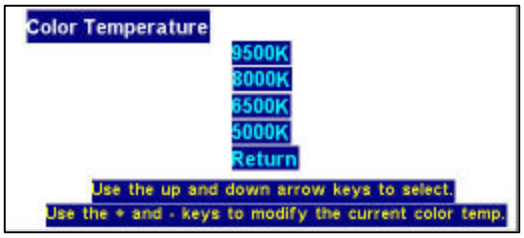


•BRIGHTNESS & CONTRAST

- MENU : Enter Sub Menu
- UP(-) : Select Prev Menu(Exit)
- DOWN(+) : Select Next Menu(Color Temperature)

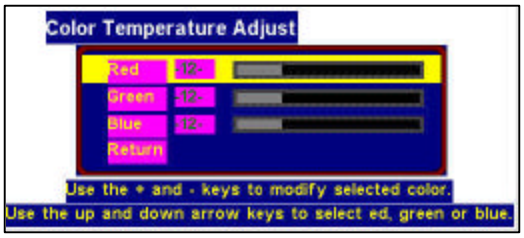
•BRIGHTNESS & CONTRAST

- MENU :Set Current Menu
- UP(-) : Cursor Up/Decrease the value
- DOWN(+) : Cursor Down/Increase the value



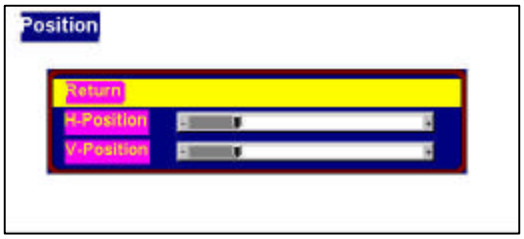
•COLOR TEMPERATURE

- MENU : Enter Sub Menu
- UP(-) : Select Prev Menu(Brightness&Contrast)
- DOWN(+) : Select Next Menu(Position)


Color Temperature Adjust
Red
Green
Blue
Return
Use the + and - keys to modify selected color.
Use the up and down arrow keys to select ed, green or blue.

•COLOR TEMPERATURE

- MENU :Set Current Menu
- UP(-) : Cursor Up/Decrease the value
- DOWN(+) : Cursor Down/Increase the value



•POSITION

- MENU : Enter Sub Menu
- UP(-) : Select Prev Menu(Color Temperature)
- DOWN(+) : Select Next Menu(Zoom)

•POSITION

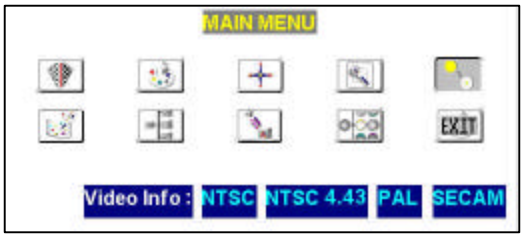
- MENU :Set Current Menu
- UP(-) : Cursor Up/Decrease the value
- DOWN(+) : Cursor Down/Increase the value

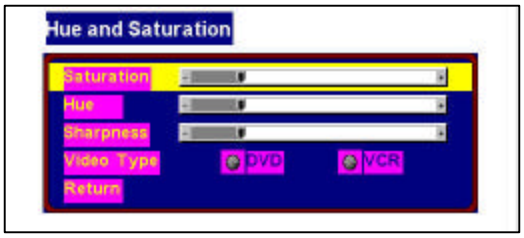
•ZOOM

- MENU : Enter Sub Menu
- UP(-) : Select Prev Menu(Position)
- DOWN(+) : Select Next Menu(Hue&Saturation)

•ZOOM

- MENU :Set Current Menu
- UP(-) : Cursor Up/Decrease the value
- DOWN(+) : Cursor Down/Increase the value



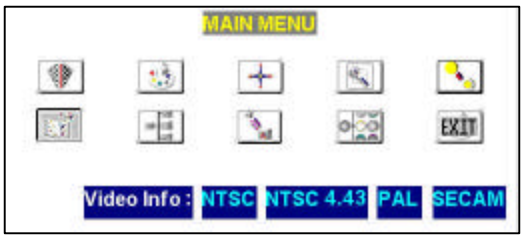


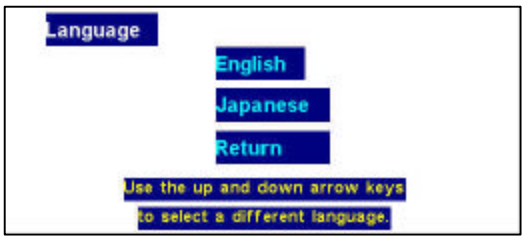
•HUE & SATURATION

- MENU : Enter Sub Menu
- UP(-) : Select Prev. Menu(Zoom)
- DOWN(+) : Select Next Menu(Language)

•HUE & SATURATION

- MENU :Set Current Menu
- UP(-) : Cursor Up/Decrease the value
- DOWN(+) : Cursor Down/Increase the value





•LANGUAGE

- MENU : Enter Sub Menu
- UP(-) : Select Prev Menu(Hue&Saturation)
- DOWN(+) : Select Next Menu(Source)

•LANGUAGE

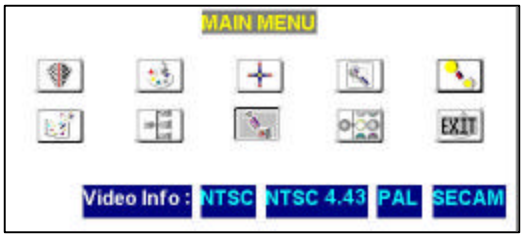
- MENU :Set Current Menu
- UP(-) : Cursor Up
- DOWN(+) : Cursor Down

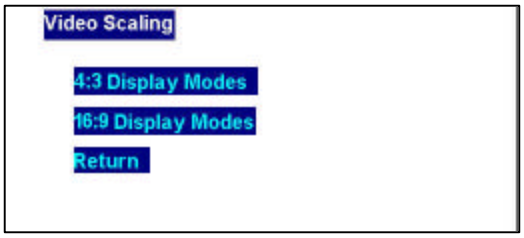
•SOURCE

- MENU : Enter Sub Menu
- UP(-) : Select Prev Menu(Language)
- DOWN(+) : Select Next Menu(Video Scaling)

•SOURCE

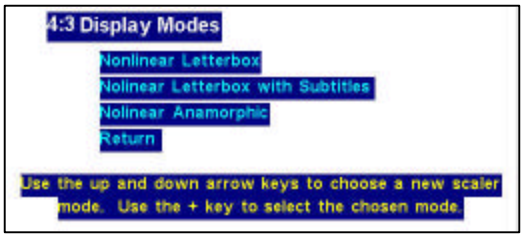
- MENU :Set Current Menu
- UP(-) : Cursor Up
- DOWN(+) : Cursor Down

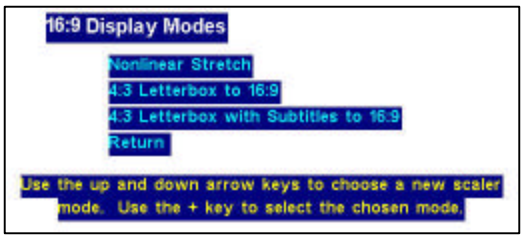




•VIDEO SCALING

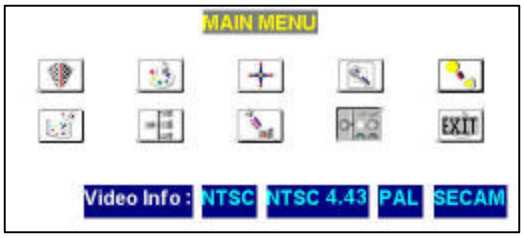
- MENU : Enter Sub Menu
- UP(-) : Select Prev. Menu(Source)
- DOWN(+) : Select Next Menu(Utilities)

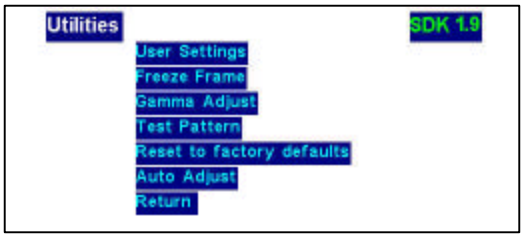

4:3 Display Modes
Nonlinear Letterbox
Nolinear Letterbox with Subtitles
Nolinear Anamorphic
Return
Use the up and down arrow keys to choose a new scaler mode. Use the + key to select the chosen mode.


16:9 Display Modes
Nonlinear Stretch
4:3 Letterbox to 16:9
4:3 Letterbox with Subtitles to 16:9
Return
Use the up and down arrow keys to choose a new scaler mode. Use the + key to select the chosen mode.

•VIDEO SCALING

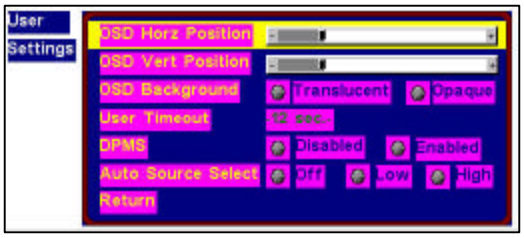
- MENU :Set Current Menu
- UP(-) : Cursor Up
- DOWN(+) : Cursor Down

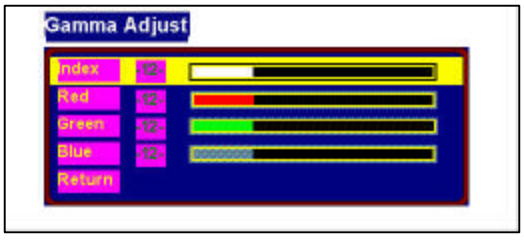


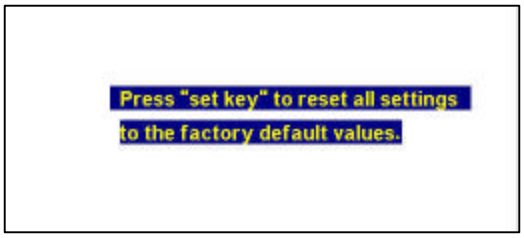


•UTILITIES

- MENU : Enter Sub Menu
- UP(-) : Select Prev Menu(Video Scaling)
- DOWN(+) : Select Next Menu(Exit)

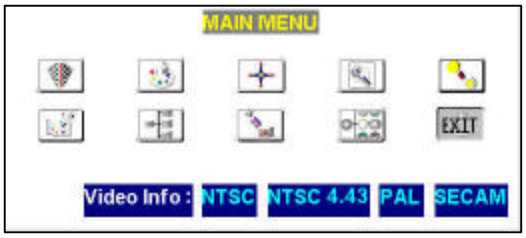






•UTILITIES

- MENU :Set Current Menu
- UP(-) : Cursor Up/Decrease the value
- DOWN(+) : Cursor Down/Increase the value



•EXIT

- MENU : Exit the Menu
- UP(-) : Select Prev. Menu(Utilities)
- DOWN(+) : Select Next Menu(Brightness&Contrast)

KORTEK

KT-LS17E4/SDT

VIDIO BOARD SPECIFICATION

MAY. 2000

KORTEK CORPORATION

328-5Songnae-1 Dong,
Sosa-Gu,Puchon-Si,
Kyunggi-Do,Korea
422-042
Tel (82)-32-667-3711
Fax (82)-32-665-0297

*** Revision Record**

DATE	Rev No	CONTENTS	Notes
MAY 00	1.0	First Preliminary Version.	

1.General Description

1) DPMS for monitor power management support

2) DDC(Display Data Channel)1/2B support : VESA EDID Standard

3) VIDEO SUPPPORT (Composite, S-VHS MODE).

(1) NTSC 60Hz.
(2) PAL 50Hz.
(3) SECAM 50Hz.

4) Etc Characteristics.

(1) Zoom function.
(2) More Graphical OSD support.
(3) Remote Controller support.
(4) Scaling function

Note : Refer to 'KT-LS17E4/STD AD Board Block Diagram' on next page.

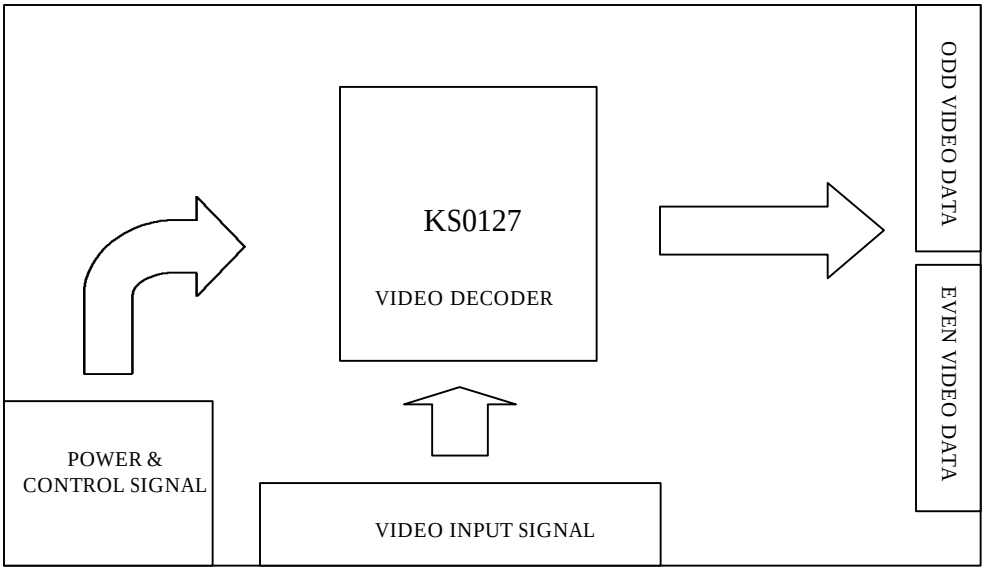
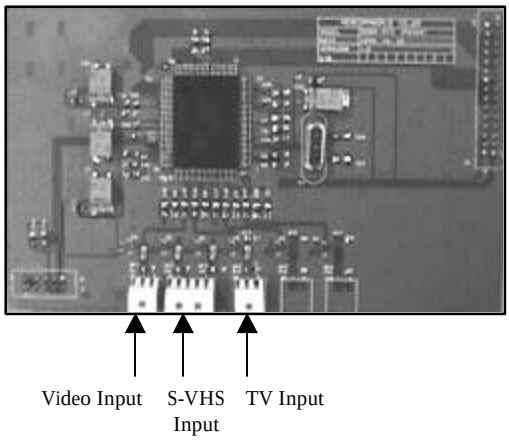


FIG-1) KT-LS-17E4/STD BLOCK DIAGRAM



<Cable Connections>

2.Electrical Specifications

2-1 Maximum Ratings

The followings are maximum values which, if exceeded, may cause faulty operation or damage to A/D Board unit.

Parameter	Symbol	Values		Units	Conditions	Notes
		MIN	MAX			
Power Input Voltage	IV_{AA}	0	+14	VDC	At 25	Mate-connector 1)DC-JACK. 2) Molex 5474NA – 2pin
Operating Temperature	T_{OP}	0	+50		25	
Storage Temperature	T_{ST}	-20	+60		1	

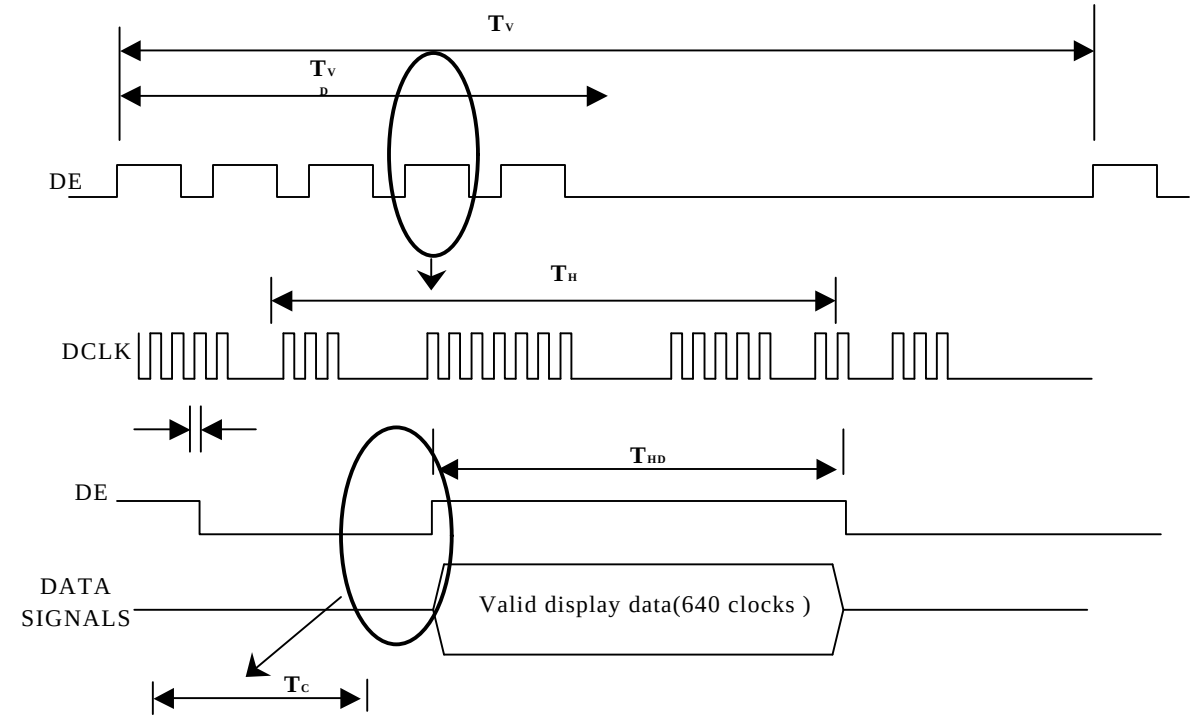
Note : 1. The Relative Humidity must not exceed 95% non-condensing at temperatures of 40 or less
At temperatures greater than 40 , the wet bulb temperature must not exceed 39 .
2. Mate Connector is selectable between DC-JACK and 5474NA-2pin.

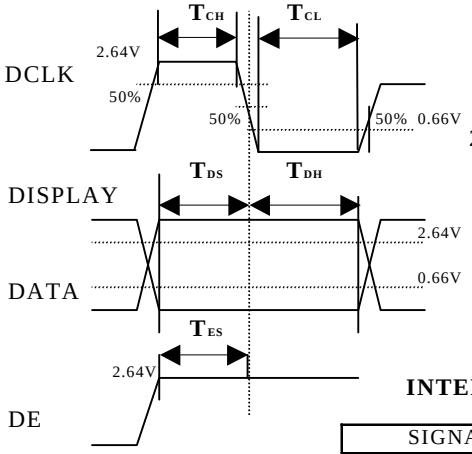
2-2 Electrical Specifications

PART	PARAMETER	SYMBOL	VALUES			UNITS	NOTES
			MIN	TYP	MAX		
POWER INPUT	Power Supply Input Voltage	IV_{AA}	11	12	13.2	VDC	
	Power Supply Input Current	I_{IVAA}	TBD	TBD	TBD	A	
	Power Supply Input Voltage Ripple	IV_{RAA}			300	mV_{PP}	
	POWER Consumption		TBD	TBD	TBD		
POWER OUTPUT	+5V Output Voltage	OV_5	4.5	5	5.5	VDC	
	+3.3 Output Voltage	OV3.3	3	3.3	3.6	VDC	
	+12V Output Voltage	OV12	10.8	12	13.2	VDC	

3. Signal Timing & Wave form

3-1. At DE Only mode

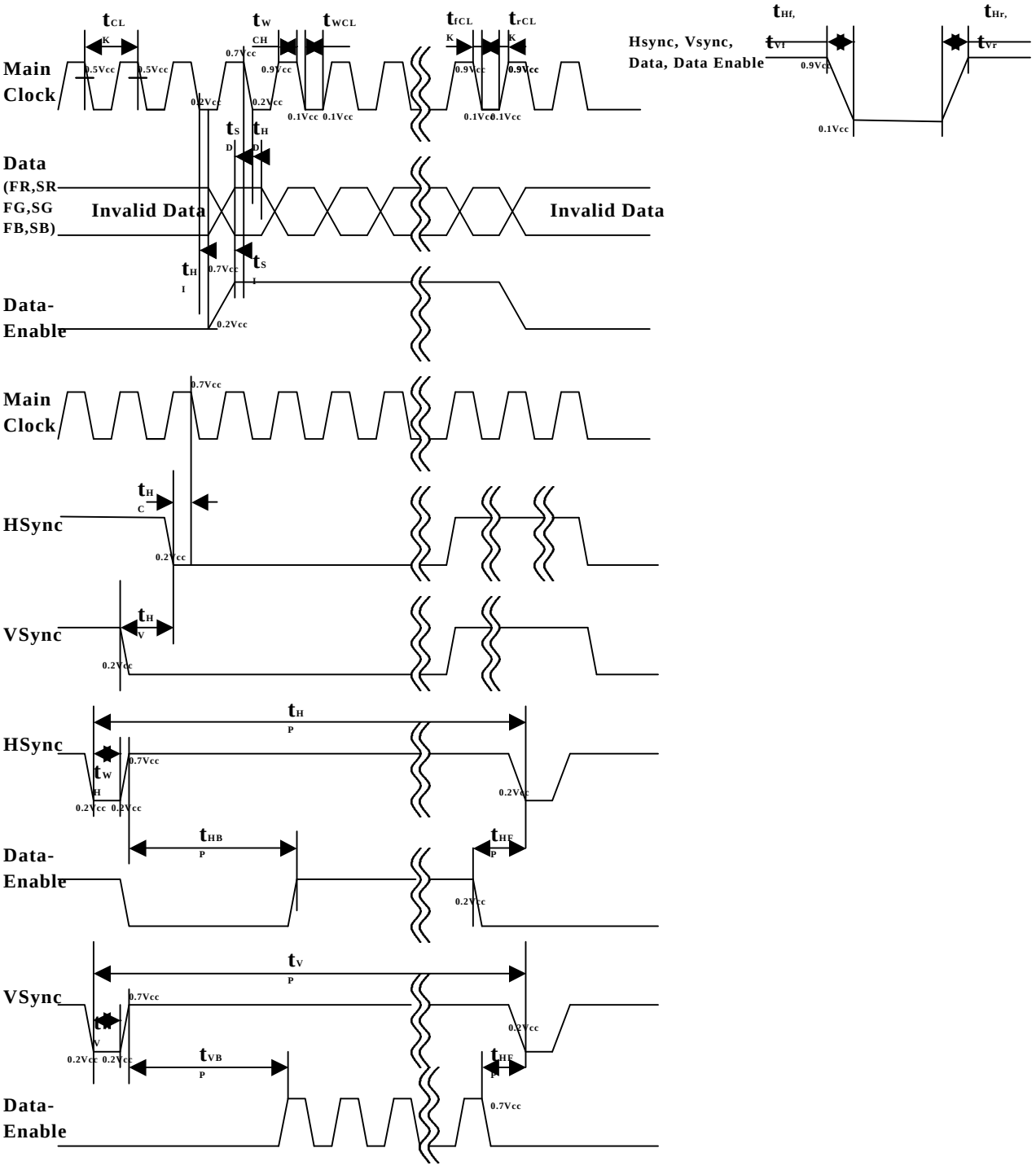




INTERFACE TIMING (application model : SAMSUNG LT170E4-L01)

SIGNAL	ITEM	SYMBOL	MIN	TYP	MAX	UNIT
CLOCK	Frequency	1/Tc			54	MHz
	High time	TCH	5			nsec
	Low time	TCL	5			nsec
DATA	Setup Time	TDS	4			nsec
	Hold Time	TDH	4			nsec
DATA ENABLE	Setup Time	TES	4			nsec
VERTICAL ACTIVE LINE	Cycle	TV	1028		1066	lines
ONE LINE SCANNING TIME	Display Period	TVD	1024	1024	1024	lines
FRAME FREQUENCY	Cycle	TH	656		844	clocks
HORIZONTAL ACTIVE TIME	Display Period	THD	640	640	640	clocks

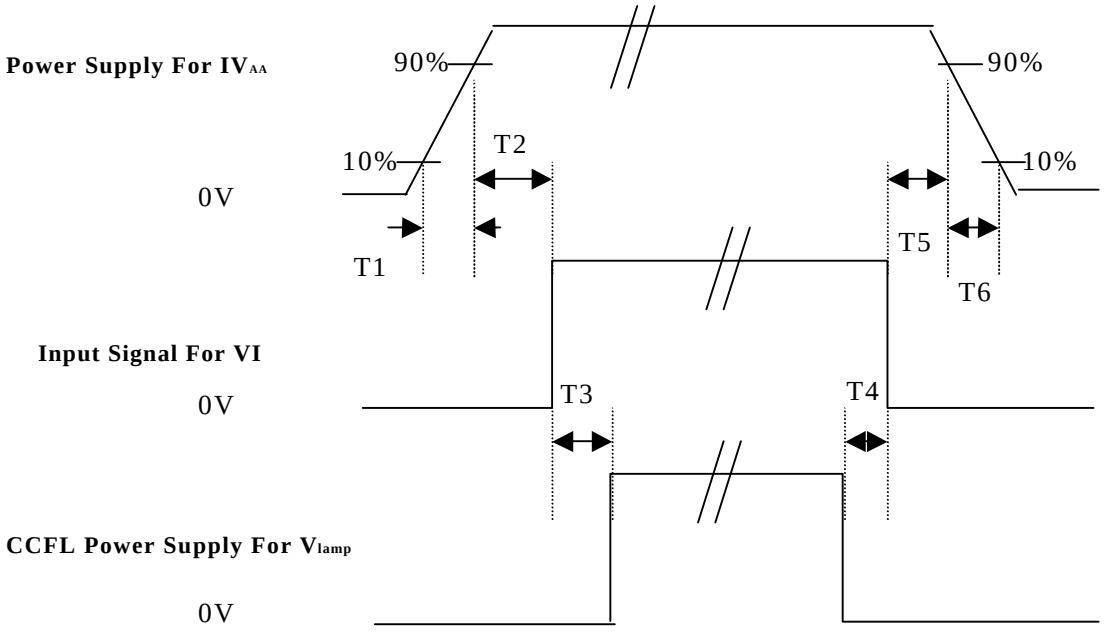
3-2. at Hsync,Vsync,DE mode



3-3. Timing Spec (Application model : LG LM181E1)

SIGNAL	ITEM	SYMBOL	MIN	TYP	MAX	UNIT
CLOCK	Frequency	Tclk	54	54	54	MHz
	High Time	T_{WCH}	0.4Tclk	0.5Tclk	0.6Tclk	ns
	Low Time	T_{WCL}	0.4Tclk	0.5Tclk	0.6Tclk	ns
	Rise time	T_{rclk}	-	-	2.3	ns
	Fall time	T_{fclk}	-	-	1.4	ns
DATA	Setup Time	T_{SD}	5.0	-	-	ns
	Hold Time	T_{HD}	5.0	-	-	ns
	Rise Time	T_{Dr}	-	-	4.5	ns
	Fall Time	T_{Df}	-	-	2.1	ns
Hsync	Period	T_{HP}	680	844	-	clock
	Pulse Width	T_{WH}	8	56	-	clock
	Rise/Fall Time	T_{Hr} ,T_{Hf}	-	-	5	ns
Vsync	Period	T_{VP}	1032	1066	-	lines
	Pulse Width	T_{WV}	2	3	-	lines
	Rise/Fall Time	T_{vr} ,T_{vf}	-	-	10	ns
Hsync-Clock phase difference		T_{HC}	Tclk-10	-	T_{WCL}	ns
Vsync-Clock phase difference		T_{HV}	-	-	T_{HP}-T_{WH}	ns

4. Power Sequence (Supply for LCD)



0 T1 10msec **0 T3 50msec**

0 T2 50msec **0 T5 50msec**

0 T5 50msec **10ns T6 20msec**

* This timing sequence is kept when the A/D Board is turned on or turned off.

5. Interface Connections.

5-1.Output Pin Config

Pin No	Symbol
1	SCL
2	SDT
3	RESERVE
4	RESERVE
5	A2P
6	A2M
7	GND
8	GND
9	A1P
10	A1M
11	RESERVE
12	RESERVE
13	+5V(Not Use)
14	GND
15	A0P
16	A1P
17	GND
18	GND
19	ACP
20	ACM
21	NC

Position No : J5
JAE 21PIN (LVDS 2CH)
MODEL NO: F1-WE2PB-HF
Mate Connector :
FI-WE21S

Pin No	Symbol
1	NC
2	GND
3	GND
4	RXC-
5	RXC+
6	GND
7	GND
8	RX0-
9	RX0+
10	GND
11	GND
12	RX1-
13	RX1+
14	GND
15	GND
16	RX2-
17	RX2+
18	GND
19	GND
20	NC
21	NC
22	SDA(Not Use)
23	SCL(Not Use)
24	VCLK(Not Use)
25	FRC(Not Use)
26	VDD
27	VDD
28	VDD
29	VDD
30	VDD
31	VDD

Position No : J12
JAE 31PIN(SiI150)
MODEL NO: F1-WE21PB-HF
Mate Connector :
FI-WE31S

5-2.Keypad Pin Config

Pin No	Symbol
1	MENUSEL
2	MENUEXIT
3	DOWN
4	UP
5	SOURCESEL
6	3.3V
7	LED GREEN
8	LED RED
9	GND
10	GND
11	POWER_SW1
12	POWER_SW2

Position No : J10
Molex 12 Pin(OSD)
MODEL NO: 53015-1210
Mate Connector :

5-3. Power Output Config For LCD

Pin No	Symbol
1	GND
2	GND
3	VCC1(3.3V, 5V,12V SELECT)
4	VCC1(3.3V ,5V,12V SELECT)
5	GND

Position No : J6
Molex 5 Pin(LCD POWER)
MODEL NO: 53015-0510
Mate Connector :

5-4. Dummy Pin Config For other Applications

Pin No	Symbol
1	VCC1(5V,12V SELECT)
2	VCC1(5V,12V SELECT)
3	DUMMY PORT
4	SDA
5	SCL
6	3.3V
7	GND
8	GND

Position No : J8
Molex 8 Pin(LCD POWER)
MODEL NO: 53015-0810
Mate Connector :

5-5. Inverter Pin Config(BACK LIGHT)

Pin No	Symbol
1	12V
2	12V
3	GND
4	CONTROL BRIGHTNESS
5	GND
6	ENABL BACKLIGHT
7	GND
8	VCC(3.3V OR 5V SELECT)

Position No : J11
Molex 8 Pin(INVERTER)
MODEL NO: 53015-0810
Mate Connector :

5-6. Power Input Pin Config

Pin No	Symbol
1	12V
2	GND
3	GND

Position No : J14
DC-JACK(POWER IN)
MODEL NO: 53015-0810
Mate Connector :

(OPTIONNAL)

Pin No	Symbol
1	12V
2	GND

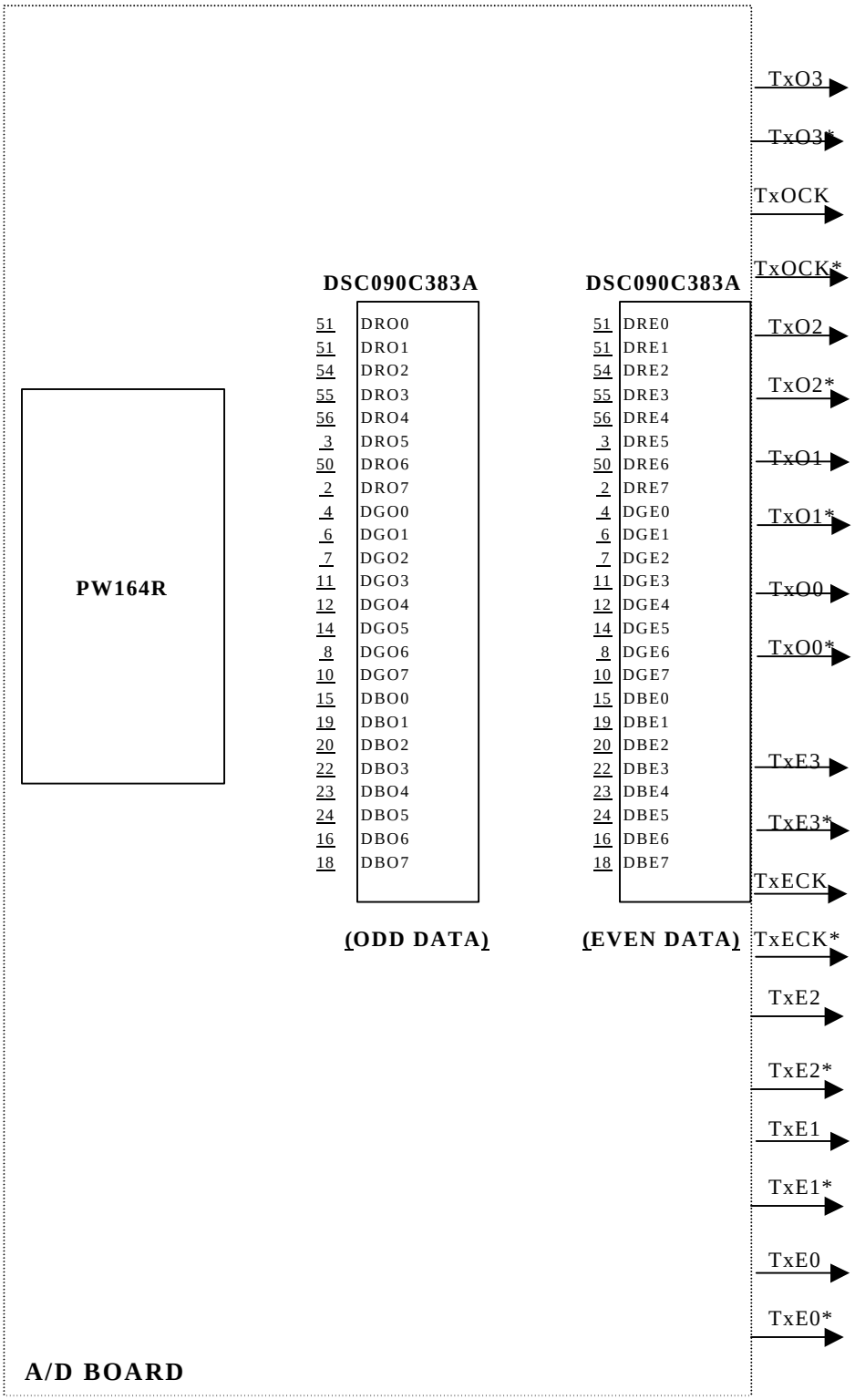
Position No : CON2
Molex 2Pin (POWER IN)
MODEL NO: 5474NA
Mate Connector :

5-7. DEBUG Pin Config

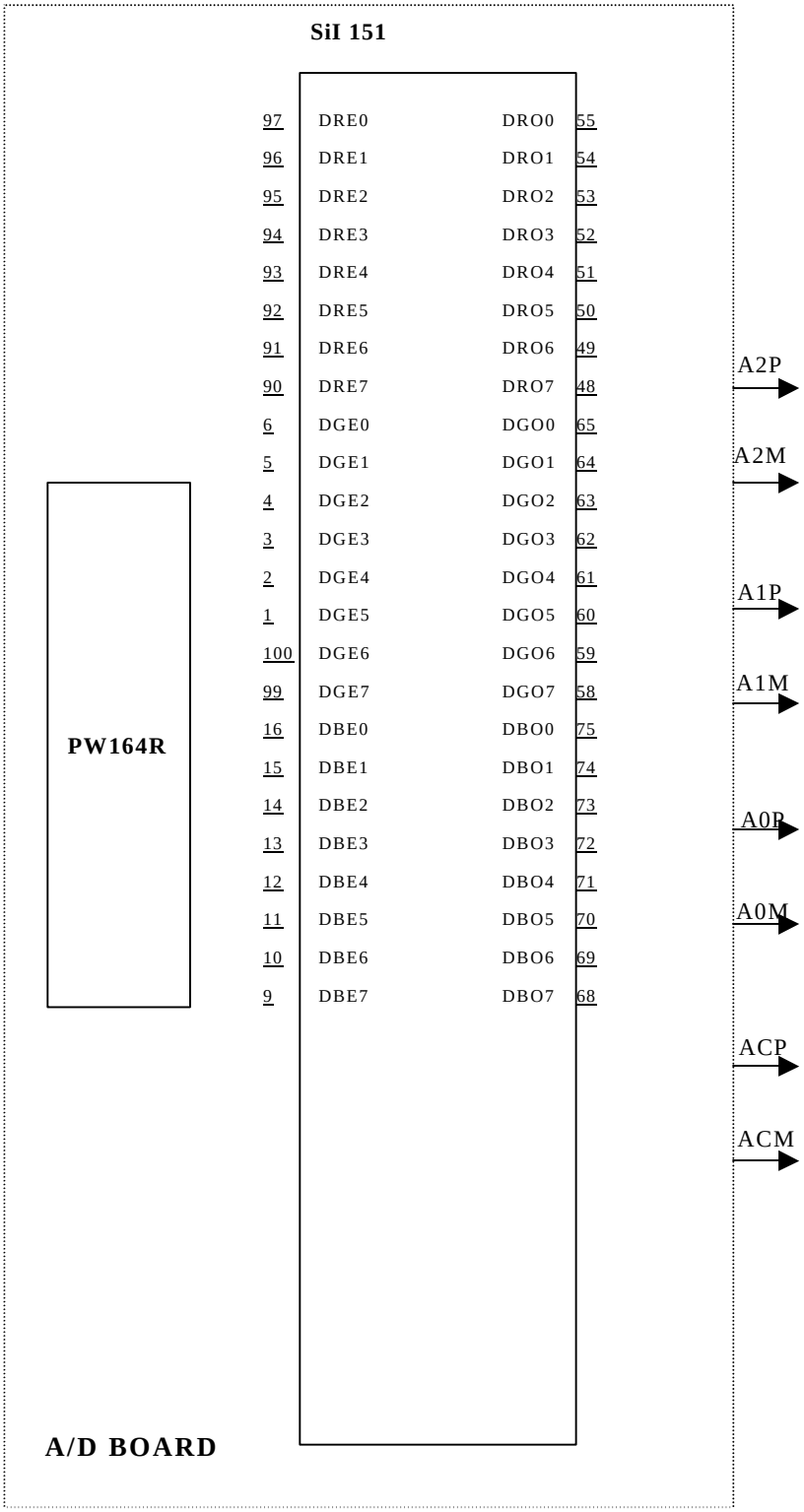
Pin No	Symbol
1	TXD
2	GND
3	RXD
4	VCC
5	N.C

Position No : J11
Molex 5 Pin(INVERTER)
MODEL NO: 53015-0510
Mate Connector :

5-8. LVDS 2CHANNEL OUTPUT INTERFACE



5-9 PANEL LINK OUTPUT INTERFACE



6. Mechanical Characteristics (Top view)